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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/586,243

Applicant(s)

MATSUDA ET AL.

Examiner

JUE ZHANG

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 10-12 is/are pending in the application.
4a) Of the above claim(s) 12 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-7, 10 and 11 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☒ Claim(s) 12 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

This Office action is in answer to the amendment filed 01/04/2008. Claims 1-7, 10-12 are pending, of which claim 1 is amended, and claim 12 is newly added by the present amendment.

Election/Restrictions

1. Newly submitted claim 12 directed to inventions that are independent or distinct from the inventions originally claimed for the following reasons: the inventions of original claims 1-7, 10-11 and the newly added claim 12 directed to two patently distinct species of power inverter device. The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. For instant case, the species of original presented in the applicant using a second terminal for supplying a high-voltage to the switching element in the upper arm unit, the newly added species of claim 12 using a second terminal connecting to a driver circuit for driving the upper-arm switching element.

In addition, these species are not obvious variants of each other based on the current record.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, newly added claims 13-32 are withdrawn from

consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-7, 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant recites the limitation " a second terminal (e.g. VS1, VS2,VS3) for supplying a high-voltage to the switching element in the upper arm unit " in claim 1, and further recited the newly added limitation "the second terminal is not directly connected to the upper arm unit " in the current amendment. There is insufficient antecedent basis for this limitation in the claim since it is not clear without a direct connection between the second terminal and the upper-arm unit how the high-voltage is supplied to the switching element in the upper arm unit from the second terminal. Therefore, the metes and bounds of the claim are unclear. Applicant's correction is required.

For the claim examining purpose the limitation is interpreted as that the second terminal is connected to the high-arm unit through a trace or a wire or a cable for supplying the high-voltage to the unit.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7, 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Toshiyuki et al. (JP Pub No. JP10-042'575, hereinafter '575).

Claim 1, '575 teaches an inverter device (Fig. 1-6) comprising:

an inverter circuit including a bridge circuit connected between a positive electrode and a negative electrode of a direct-current power supply (Fig. 1-6), the bridge circuit including

an upper arm unit including an upper-arm switching element (e.g., T1, T3, T5)(Fig. 1-6) and an upper arm diode (e.g., D1, D3, D5)(Fig. 1-6) connected in reverse-parallel to each other;

a lower arm unit including a lower arm switching element (e.g., T2, T4, T6)(Fig. 1-6) and a lower arm diode (e.g., D2, D4, D6)(Fig. 1-6) connected in reverse-parallel to each other, the lower arm unit being series connected with the upper arm unit;

an inverter driving unit including a high withstand voltage IC (e.g., 100 or 200)(Fig. 1-6)[0001](Abstract) that drives switching elements in the upper arm unit and the lower-arm unit, the high-withstand-voltage IC having a first terminal (e.g., VS0) for supplying a reference voltage to the switching element in the lower arm unit and a

second terminal (e.g. VS1, VS2, VS3) for supplying a high-voltage to the switching element in the upper arm unit (Fig. 1-6); and

a clamp unit (e.g., 110 or 216-218) that clamps a potential difference between the first terminal and the second terminal (Fig. 1-6),

wherein the second terminal is not directly connected to the upper arm unit (e.g., the second terminal is connected to the high-arm unit through a trace or a wire or a cable means for supplying the high-voltage to the unit)(Fig. 1-6).

For claim 2, '575 teaches the limitation of claim 1 as discussed above. '575 further teaches that the inverter circuit is a single-phase inverter circuit (Fig. 1-3).

For claim 3, '575 teaches the limitation of claim 2 as discussed above. '575 further teaches that the clamp unit is a clamp diode (Fig. 1-3).

For claim 4, '575 teaches the limitation of claim 3 as discussed above. '575 further teaches that a current rating (e.g., the RMS current rating of the diode) of the clamp diode is smaller than a current rating (e.g., the peak current rating of the diode) of the lower arm diode (i.e., even for a same type of diode it can have more than one current ratings, for example the peak current rating vs. RMS current rating).

For claim 5, '575 teaches the limitation of claim 3 as discussed above. '575 further teach that the clamp diode is provided outside of the high-withstand-voltage IC (Fig. 1-3).

For claim 6, '575 teaches the limitation of claim 1 as discussed above. '575 further teaches that the inverter circuit is a three-phase inverter circuit (Fig. 4-6).

For claim 7, '575 teaches the limitation of claim 6 as discussed above. '575 further teaches that the clamp unit includes a plurality of clamp diodes each corresponding to each phase of the three-phase inverter circuit (Fig. 4-6).

For claim 10, '575 teaches the limitation of claim 7 as discussed above. '575 further teaches that each of the clamp diodes is connected between the first terminal and each of the second terminals (Fig. 4-6).

For claim 11, '575 teaches the limitation of claim 7 as discussed above. '575 further teaches that the high-withstand-voltage IC having a third terminal (e.g., VCC)(Fig. 4-6) for supplying a high-voltage to the switching element in the lower arm unit, and fourth terminals (e.g., VB1-VB3)(Fig. 4-6) each for supplying a high-voltage to a switching element in each phase, and the clamp diodes include a first clamp diode connected between the first terminal and the third terminal (e.g., 216, 217,218)(Fig. 5); and second clamp diodes (e.g., 202-204) each connected between the third terminal and each of the fourth terminals (Fig. 4-6).

Response to Amendment

6. Applicant's arguments filed on 1/4/2008 regarding the rejection of claims 1-7, 10-11 have been fully considered but are found not persuasive.

Applicant's above arguments have been considered but are found not persuasive for the reasons as indicated in the previous office action as well as the current office action above. As indicated in the previous office action and current office action above, the prior arts '575 does disclose the claimed limitations the original claims and the

Art Unit: 2838

amended claims as indicated in the original office action as well as the current office action above. Therefore the ground of rejections base one '575 is maintained in the current office action.

For at least the above reasons, as well as the reasons indicated in the section of Election/Restrictions and Claim Rejections - 35 USC § 102 above, the current office action is made final.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUE ZHANG whose telephone number is (571)270-

1263. The examiner can normally be reached on M-Th 7:30-5:00PM EST, Other F 7:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JZ

/Bao Q. Vu/
Primary Examiner, Art Unit 2838
March 28, 2008